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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,318

09/16/2003

Bulent Basol

NT-108C1-US

1934

7590

11/29/2004

Legal Department
NuTool, Inc
1655 McCandless Drive
Milpitas, CA 95035

EXAMINER

LE, THAO X

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,318	Applicant(s) BASOL ET AL.	
	Examiner Thao X Le	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>17/11/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 5-6, 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6465376 to Uzoh et al.

Regarding claim 1, Uzoh discloses a process of fabricating conductive structures, fig. 1-6, in features 5, fig. 5, of an insulator layer 2, column 2 line 53, on a substrate 1 comprising applying a layer of conductive material 8 over the insulator 2, fig. 2, so that the layer of conductive material 8 covers field regions (outside area 5) adjacent said features 5 and fills in said features, establishing a grain size differential 9, fig. 4, between the conductive material 8 which covers said field regions and the conductive material 8 which fills in said features 8 by annealing, column 3 lines 23-28, said layer of conductive material 8, and removing excess conductive material 8 to uncover said field regions and leave said conductive structures, fig. 6.

Regarding claim 2, Uzoh discloses the process wherein said layer of conductive material 8 applied as to define a first layer thickness over said field regions and a second layer thickness in and over said features 8, fig. 4.

Regarding claims 5-6, Uzoh discloses the process wherein applying the layer of conductive 8 over the insulator layer 2 includes depositing the layer of conductive material 8, and partially removing the layer of conductive material 2 from over said field regions, fig. 3, to establish a desired thickness differential between the first and second layer thickness, wherein applying the layer of conductive material 8 over the insulator layer 2 includes depositing a planarized layer of conductive material 8 over the insulator layer 2 to establish a desired thickness differential between the first and second layer thickness, fig. 3.

Regarding claim 11-12, Uzoh discloses the process wherein said conductive material 8 is copper or copper alloy, column 3 lines 7-8.

Regarding claims 13-14, Uzoh discloses the process wherein removing the excess conductive material 8 done by chemical mechanical polishing, chemical etching, electrochemical etching, any combination of chemical mechanical polishing, chemical etching and electrochemical etching, column 3 line 55, wherein establishing said grain size differential also establishes a differential in chemical removal rates, physical removal rates, or both chemical and physical removal rates at which the excess conductive material can be removed from over said field regions and over said features, column 3 lines 57-60.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3-4, 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6465376 to Uzoh et al. in view of US 6380083 to Gross.

Regarding claims 3-4, 7-10 Uzoh discloses the process wherein said first layer thickness and second layer thickness have a general thickness.

But Uzoh does not disclose the process wherein said first layer thickness and said second layer thickness are dimensioned such that $d_1 \leq 0.5d_2$ or $d_1 \leq 0.3d_2$ with d_1 being said first layer thickness and d_2 being said second layer thickness.

However, Gross discloses the process wherein said first layer thickness and said second layer thickness are dimensioned such that $d_1 \leq 0.5d_2$ with d_1 being said first layer thickness and d_2 being said second layer thickness, see abstract. Accordingly, it would have been obvious to one of ordinary skill in art to use the thickness teaching of Gross in combination with the thickness of Uzoh in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

Art Unit: 2814

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao X. Le
17 Nov. 2004

LONG PHAM
PRIMARY EXAMINER